

L20 ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI

ACCESSION NUMBER: 1991-02357 BIOTECHDS

TITLE: **Protease**-producing microorganism;
thermostable alkaline **protease** preparation from
Nocardiopsis sp.; purification and
characterization

PATENT ASSIGNEE: Snow-Brand-Milk-Prod.

PATENT INFO: JP 02255081 11 Oct 1990

APPLICATION INFO: JP 1989-76421 30 Mar 1989

PRIORITY INFO: JP 1989-76421 30 Mar 1989

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

OTHER SOURCE: WPI: 1990-352502 [47]

AB A new **protease**-producing microorganism is an alkalophilic actinomycete, **Nocardiopsis sp.** OPC-110 (FERM P-1-503), with a cell wall of meso-type III/C model, confirmed by 2,6-diaminopimelic **acid** determination, and phospholipid of the PIII model. The strain originates from soil. The **protease** is purified by acetone precipitation, dialysis, anion-exchange chromatography on DEAE-Sephadex A-50 and cation-exchange chromatography on CM-Sephadex CL-6B. The **protease** has the following characteristics: a mol.wt. of 21,000 (SDS-PAGE); an optimum pH of 10-12 (on casein as a substrate); an optimum temp. of 60-70 deg; stability up to 50 deg at pH 10 for 30 min, and complete inactivation at 70 deg; residual activity above 30% at pH 4-6 and 60 deg for 30 min, and inactivation at pH 10; stabilization by calcium ions; and inhibition by PCMB and EDTA. The **protease** is a useful thermostable alkaline **protease**. (4pp)

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(FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASE?
L2 6016 S ACID A)STABLE
L3 76 S L1A L2
L4 0 S MYOCARDIOSIS
L5 1 S MYOCARDIOSIS
L6 622 S MYOCARDIOSIS
L7 55 S L1 AND L6
L8 1 S L6 AND L7
L9 43516 S ANIMAL (W)FEED?
L10 1 S L9 AND L7
L11 1 S COMPOSITION?
L12 2805615 S COMPOSITION?
L13 11 S L12 AND L7
L14 2 DUF REM L13 (13 DUPLICATES REMOVED)
L15 201 S L6 (A) (SP. OF ALFA)
L16 22 S L15 AND L7
L17 2 DUF REM L16 (14 DUPLICATES REMOVED)
L18 0 S L6 (A) (REF:18262)
L19 1 S L17 AND ACID
L20 1 DUF REM L19 (0 DUPLICATES REMOVED)
E SJOGHOLM C/AU
L21 12 S E3
L22 13 S E4
L23 22 S L21 OR L22
L24 1 S L7 AND L23
E CESTERGAARD P R/AU
L25 5 S E3
L26 25 S L23 OR L25
L27 5 S L1 AND L26
L28 5 DUF REM L27 (0 DUPLICATES REMOVED)
L29 0 S L28 AND L15
L30 4 S L28 AND L2
L31 4 DUF REM L30 (0 DUPLICATES REMOVED)

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 NEWS 7 Mar 11 TOXLIT no longer available
 NEWS 8 Mar 11 TECTHERMO no longer available
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FILE 'LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002
COPYRIGHT (C) 2002 Cambridge Scientific Abstracts (CSA)

=> s protease?
L1 349244 PROTEASE.

=> s acid(a)stable
L1 6016 ACID(A) STABLE

=> s l1(a)l2
L3 76 L1(A) L2

=> s nocardiposis
(-----User Break-----)

L4 3 NOCARDIPOSISu
L5 1 NOCARDIPOSIS

(-----User Break-----)

=> s nocardipos:
L6 699 NOCARDIOPPOSIS

=> s l1 and l6
L7 59 L1 AND L6

=> s l2 and l7
L8 1 L2 AND L7

=> g all

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1. Protease, acid stable
2. L1 and L2
3. L1 and L6
4. L2 and L7
5. All

CC 17-12 (Food and Feed Chemistry)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 200103276	A2	20010316	WO 2001-EP1153	20010205
	WO 200103276	A3	20020211		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, ME, MK, MN, MW, MX, MY, NG, NI, NL, NO, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TS, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AE, BY, KB, KZ, MD, RU, TJ, TM				
	RW: BH, BM, BE, LB, MW, MC, SD, SL, SZ, TZ, UB, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LG, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, CA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2001036797	A1	20011004	US 2001-779223	20010208
PRAI	DK 2000-200	A	20000208		
	US 2000-183133P	P	20000217		
AB	Disclosed are acid-stable proteases homologous to those derived from strains of the genus Nocardiopsis , their use in animal feed, feed-additives and feed compns. contg. such proteases , and methods for the treatment of vegetable proteins using such proteases .				
ST	protease Nocardiopsis animal feed vegetable protease				
IT	Feed				
	Nocardiopsis				
	acid-stable Nocardiopsis				
	proteases in animal feed)				
IT	Vegetable				
	proteins; treatment with proteinases in manufg. feed)				
IT	Proteins, general, biological studies				
	RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				
	(soybean; animal feed manuf. with proteinases and)				
IT	Proteins, general, biological studies				
	RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				
	(vegetable; treatment with proteinases in manufg. feed)				
IT	9001-92-7, Protease				
	RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				
	(acid-stable proteases in animal feed)				
IT	9011-11-2, .beta.-Galactanase 3727-89-0, Xylanase 37341-53-5, Phytase 39148-29-8, Galactanase				
	RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)				
	(animal feed contg. proteinase and)				

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FILE 'MEDLINE, EMBASE, BIOSIS, BIOETHICS, BIORESEARCH, BIOLOGY, NTIS, LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

=> s 19 and 17
L10 1 19 AND 17

=> d all

L10 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2002 ACS
AU 2001:597756 HCAPLUS
DI 135:152033
TI Use of acid-stable **proteases** in **animal feed**
IN Oestergaard, Peter Rahbek; Stoeholm, Carsten
PA F Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 49 pp.
CODEN: PXXXX2
DT Patent
LA English
IC ICM A23K01:165
CL 17-12 (Food and Feed Chemistry)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
P:	WO 2001081275	A2	20010816	WO 2001-EP1153	20010205
	WO 2001081275	A3	20020221		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DO, EE, ES, FI, GE, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, ME, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AS, AY, BG, KZ, MD, RU, TJ, TM				
FW:	GH, GM, KE, LS, MW, MC, SD, SL, SE, TE, US, ZW, AT, BE, CH, CY, IE, DK, ES, FI, FR, GB, GR, IE, IT, LU, ML, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 2001086797	A1	20011004	US 2001-779323	20010208
PHAI	DK 2000-201	A	20000208		
	US 2000-183133P	P	20000217		

AB Disclosed are acid-stable **proteases** homologous to those derived from strains of the genus **Nocardiopsis**, their use in **animal feed**, feed-additives and feed compns. contg. such **proteases**, and methods for the treatment of vegetable proteins using such **proteases**.

ST **protease Nocardiopsis animal feed**
vegetable protein

IT Feed

Nocardiopsis
(acid-stable **Nocardiopsis proteases** in
animal feed)

IT Vegetable

(proteins; treatment with proteinases in manufg. feed)

IT Proteins, general, biological studies

RL: FFD (Food or feed use); BIOC (Biological study); USFS (Uses: soybean; **animal feed** manuf. with proteinases and

proteases in **animal feed**

DI 135:152033 HCAPLUS COPYRIGHT 2002 ACS
AU 2001:597756 HCAPLUS
DI 135:152033
TI Use of acid-stable **proteases** in **animal feed**
IN Oestergaard, Peter Rahbek; Stoeholm, Carsten
PA F Hoffmann-La Roche A.-G., Switz.
SO PCT Int. Appl., 49 pp.
CODEN: PXXXX2
DT Patent
LA English
IC ICM A23K01:165
CL 17-12 (Food and Feed Chemistry)
FAN.CNT 2

animal feed

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FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 13:59:51 ON 25 APR 2002

L1 349244 S PROTEASE?
L2 5016 S ACID(A)STABLE
L3 76 S L1(A)L2
L4 1 S NOCARDIOSIS
L5 1 S NOCARDIOSIS
L6 694 S NOCARDIOSIS
L7 55 S L1 AND L6
L8 1 S L2 AND L7
L9 43550 S ANIMAL (W)FEED?
L10 1 S L9 AND L7

= s composition?

L11 1 COMPOSITION?

= s composition?

L12 2805615 COMPOSITION?

= s l12 and l7

L13 12 L12 AND L7

= dup rem l13

PROCESSING COMPLETED FOR L13

L14 9 DUP REM L13 (13 DUPLICATES REMOVED)

= d l-9 ikk ak

L14 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:597756 HCAPLUS

DOCUMENT NUMBER: 135:152030

TITLE: Use of acid-stable **proteases** in animal feed

INVENTOR(S): Cestergaard, Peter Rahbek; Sjoeholm, Carsten

PATENT ASSIGNEE(S): F Hoffmann-La Roche A.-G., Switz.

SOURCE: PCT Int. Appl., 43 pp.

CCDEN: PXXXX

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001056276	A2	20010816	WO 2001-EP1153	20010205
WO 2001056276	A3	20020221		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, BZ, CA, CH, CN,

DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, FR, GB, GR, HU, IE, IL, IN, JP, KR, KZ, LI, LU, MC, MD, ME, MG, MK, MN, MU, MV, MW, MY, NZ, OM, PA, PE, PG, PH, PK, PL, PT, RO, RU, SA, SE, SG, SI, SK, SL, SM, SN, SR, ST, SV, SW, SY, TD, TH, TJ, TM, TN, TR, TT, UA, UG, US, UZ, VC, VE, VN, YU, ZA, ZM, ZW

NAME: [REDACTED]
 STREET: [REDACTED]
 CITY: [REDACTED]

The producing strain is *N. dassonvillei* NRRL 18350, NRRL 18364, NRRL 18342, or a mutant. The enzyme may also hydrolyze cell walls of *Micromonospora kristinae*. The enzyme may be used in a surfactant **composition** with a *Bacillus* sp. alkaline **protease** (with at least 200 U bacteriolytic activity/g preparation and 0.3-3.0 Anson units **protease**/g). The enzyme is produced in submerged culture in the presence of C- and N-sources, and is recovered from the culture broth. A method for reducing body odor of clothes involves washing or rinsing clothes in water containing at least 1,000 U bacteriolytic enzyme preparation. In an example, NRRL 18342 was grown in 50 ml culture medium containing 20 g/l maltodextrin M-100, 10 g/l soybean meal, 5 g/l yeast extract and 2 g/l NaCl (pH 7.0) at 30 deg for 24 hr. The lytic activity against *S. aureus* was 16.2 U/ml. (9pp)

L14 ANSWER 4 OF 9 MEDLINE DUPLICATE 2
 ACCESSION NUMBER: 94127130 MEDLINE
 DOCUMENT NUMBER: 94127130 PubMed ID: 7764689
 TITLE: Purification and characterization of alkaline serine **protease** from an alkalophilic *Streptomyces* sp.
 AUTHOR: Yum D Y; Chung H C; Bai D H; Oh D H; Pa S H
 CORPORATE SOURCE: Department of Food and Biotechnology, College of Engineering, Yonsei University, Seoul, Korea.
 SOURCE: BIOSCIENCE, BIOTECHNOLOGY, AND BIOCHEMISTRY, (1994 Mar) 58 (3): 470-4.
 PUB. COUNTRY: Journal code: BDE; 9205717. ISSN: 1316-8451.
 LANGUAGE: English
 FILE SEGMENT: B
 ENTRY MONTH: 199406
 ENTRY DATE: Entered STN: 19950809
 Last Updated on STN: 20000303
 Entered Medline: 19940607

AB SAP, an extracellular alkaline serine **protease** produced by *Streptomyces* sp. YSA-130, was purified to homogeneity by CM-Sephadex column chromatography and crystallization. The enzyme was a monomeric protein with a molecular weight of 18,000 as estimated by SDS-PAGE and gel filtration. The amino acid **composition** and amino-terminal sequence of SAP were similar to those of other bacterial serine **proteases**, i.e., *Streptomyces griseus* **proteases** A and B, *Lysobacter enzymogenes* alpha-lytic **protease** and *Nocardioopsis dassonvillei* subsp. *prasinus* (PC-21) alkaline serine **protease** NLP 1. The optimum temperature and pH for the enzyme activity were 30 degrees C and 10.0. The enzyme was stable up to 50 degrees C, and between pH 4 and 10. The activity was inhibited by Ag⁺, Hg²⁺, Co²⁺, sodium dodecyl sulfate, N-bromosuccinimide, diisopropyl phosphorocluoridate (DFP), 2,3-butanedione, 5,5'-dithiobis-(2-nitrobenzoic acid) (DTNB), iodoacetate, N-ethylmaleimide (NEM), phenylmethanesulfonyl fluoride (PMSF), and phenylglyoxal.

L14 ANSWER 5 OF 9 BIOSIS COPYRIGHT 2001 ACS
 ACCESSION NUMBER: 1994:127130

COMPET: 127130
 COUNTRY: Korea
 DOCUMENT NUMBER: 127130

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9313193	A1	19930709	WO 1992-DK383	19921118
W: JP, US				
BW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 517734	A1	19941005	EP 1993-902091	19921118
EP 517734	B1	19960909		
E: AT, BE, DE, DK, ES, FR, GB, IT, NL				
AT 171912	E	19941915	AT 1993-902091	19921118
ES 1124301	T3	19941201	ES 1993-902091	19921118
US 5811332	A	19991222	US 1994-111903	19940424
PRIORITY APPLN. INFO.:			WO 1991-DK406	19911220
			WO 1992-DK383	19921118

AB **Proteases** derived from members of the genus **Nocardiopsis** show better stability than other detergent **proteases** in the presence of bleaching systems comprising an enzyme exhibiting oxidase activity and/or an enzyme exhibiting peroxidase activity and H₂O₂ or a precursor of H₂O₂.

L14 ANSWER 6 OF 9 BIOTECHEMS COPYRIGHT 2001 THOMSON DERWENT AND ISI

ACCESSION NUMBER: 1993-01169 BIOTECHEMS

TITLE: Detergent additive containing cellulase and specific **protease**; useful as laundry surfactant

PATENT ASSIGNEE: Novo-Nordisk

PATENT INFO: WO 9218599 19 Oct 1992

APPLICATION INFO: WO 1992-DK116 10 Apr 1992

PRIORITY INFO: DK 1991-737 22 Apr 1991

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 1992-181091 [46]

AB Surfactant additives or **compositions** contain a cellulase (EC-3.2.1.4) and a **protease** which is more specific than *Bacillus lentis* serine **protease**. The **protease** is subtilisin (EC-3.4.21.14) Novo (or its variants), a **protease** from *Nocardiopsis dassonvillei* NRRL 19133, a serine **protease** specific for glutamic acid and aspartic acid from *Bacillus licheniformis*, or a trypsin (EC-3.4.21.4)-like **protease** from *Fusarium* DSM 2675. The cellulase is derived from a *Humicola*, *Fusarium*, *Myceliophthora*, *Thermomonospora*, *Bacillus* or *Streptomyces* sp. It is preferably immunoreactive with an antibody raised against a 43 kDa cellulase of *Humicola insolens* DSM 1811, and is most preferably this enzyme itself; the specification includes the sequence 13-5 amino acids of the enzyme and of the DNA that encodes it. The surfactant may also contain a lipase (EC-3.1.1.3), peroxidase (EC-1.11.1.7) and/or an amylase. The surfactant contains 0.001-1.0 mg of cellulase and 0.001-1.0 mg of **protease**/g of additive. The **proteases** are less active against the cellulase than previously used **proteases** so that the storage stability of the cellulase is improved. 15pp

PATENT ASSIGNEE: Novo-Nordisk

PATENT INFO:

DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 1991-238012 [32]

AB A lytic enzyme preparation (I) comprises a bacteriolytic enzyme (II) produced by *Nocardiopsis dassonvillei* 5102-3 (NRRL 18349), 5119-6 (NRRL 18350) and D38-3 (NRRL 18364) which is able to hydrolyze *Micrococcus sedentarius*, *Pseudomonas aeruginosa*, *Micrococcus kristinae* and *Staphylococcus aureus* cell walls. (I) preferably also contains an *Bacillus* sp. alkaline **protease**. A process for producing (II) comprises cultivating a (III)-producing strain of *Nocardiopsis* under aerobic conditions in a culture medium containing assimilable sources of C, N and P, and then recovering (II) from the culture broth. (II) has a mol.wt. of 14,000 or 16,000 and an isoelectric point of 8.3 or 9.5. Also claimed are biologically pure cultures of the *N. dassonvillei* strains. (I) is used in detergents or in rinse **compositions** to remove the odor of dirty clothes, as a body deodorant, food preservative or a disinfectant in food processing, for water treatment, disinfection of hospital instruments, lysis of biomass in activated sludge, for sludge dewatering, or for protoplast production. It may also be used for cell lysis for recombinant protein purification. (26pp)

L14 ANSWER 3 OF 9 BIOTECHNICS COPYRIGHT 2001 THOMSON DEERWENT AND ISI

ACCESSION NUMBER: 1992-03489 BIOTECHNICS

TITLE: Purification and characterization of two types of alkaline serine **proteases** produced by an alkalophilic actinomycete;

chymotrypsin-like serine **protease** NDP-I,
suktilisin-like serine **protease** NDP-II
production by *Nocardiopsis dassonvillei* subsp.
prasina and characterization (conference paper)

AUTHOR: Tsujibo H; Miyamoto K; Inamori Y; Hasegawa T

LOCATION: Osaka University of Pharmaceutical Sciences, 10-65, Kawai 2-chome, Matsubara, Osaka 580, Japan.

SOURCE: J.Pharmacobiodyn.; (1991) 14, 12, s-143

CODEN: JOPHDQ

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An interesting alkalophilic actinomycete isolated from soil, *Nocardiopsis dassonvillei* subsp. *prasina* OPC-210, produced 2 types of alkaline **proteases**. **Proteases** NDP-I and NDP-II were purified from the culture filtrate and characterized. Purified NDP-I and NDP-II were homogeneous (SDS-PAGE) and had mol.wt. values of 21,000 and 30,000 and pI values of 6.4 and 3.8, respectively. NDP-I had an optimum pH of 11.0 and optimum temp. of 70 deg, while NDP-II activity was optimal at pH 11.0 and 60 deg. NDP-I was stable at pH 4-8 up to 60 deg and NDP-II was stable at pH 6-12 up to 50 deg. NDP-I and NDP-II were characterized as a chymotrypsin (EC-3.4.21.1)-like serine **protease** and a sukkilisin (EC-3.4.21.14)-like serine **protease**, respectively, on the basis of amino acid **compositions** and partial amino acid sequences. The partial amino acid sequences of NDP-II exhibited striking homology (65%) with that of subtilisin. This is the first report on the production of alkaline

ACCESSION NUMBER: 1992-03489
DOCUMENT NUMBER: 1
TITLE: Purification and characterization of two types of alkaline serine **proteases** produced by an alkalophilic actinomycete;

Nocardiopsis

proteases

AUTHOR: Tsujiho H; Miyamoto K; Hasegawa T; Inamori Y
 CORPORATE SOURCE: Osaka University of Pharmaceutical Sciences, Japan.
 SOURCE: AGRICULTURAL AND BIOLOGICAL CHEMISTRY, (1990 Aug) 54 (8)
 1177-9.
 Journal code: AMA; 0370452. ISSN: 0002-1369.
 PUB. COUNTRY: Japan
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: B
 ENTRY MONTH: 12-105
 ENTRY DATE: Entered STN: 19950909
 Last Updated on STN: 20000303
 Entered Medline: 19910508

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FILE 'MEDLINE, EMBASE, BIOSIS, BICTECHDS, SCISEARCH, HCAPLUS, NTIS,
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L1 349244 S PPOTASE?
 L2 6016 S ACID(A)STABLE
 L3 76 S L1(A):L2
 L4 1 S NECAMIPPOSIS
 L5 1 S NECARDIOPOSIS
 L6 632 S NECARDIOPOSIS
 L7 53 S L1 AND L6
 L8 1 S L2 AND L7
 L9 43556 S ANIMAL (W)FEED?
 L10 1 S L9 AND L7
 L11 1 S COMPCAITIEN?
 L12 2805615 S COMPOSITION?
 L13 53 S L12 AND L7
 L14 2 DUP REM L13 (13 DUPLICATES REMOVED)

= s 16 (A) (sp. or alba)
 L15 201 L6 (A) (SP. OR ALBA)

= s 115 and 17
 L16 1 L15 AND L7

= dup rem 117
 PROCESSING COMPLETED FOR L16
 L17 2 DUP REM L16 L14 DUPLICATES REMOVED

= d 1-8 ibib ab

L17 ANSWER 1 OF 8 MEDLINE DUPLICATE 1
 ACCESSION NUMBER: 2002130643 IN-PROCESS
 DOCUMENT NUMBER: 21854941 PUBMED ID: 11860399
 TITLE: Purification and characterization of a novel proteinase from *Aspergillus niger*

UNIVERSITY OF PHARMACEUTICAL SCIENCES, OSAKA
 OSAKA, JAPAN
 AGRICULTURE, BIOCHEMISTRY, AND BIOPHYSICS

Journal; Article; (JOURNAL ARTICLE)
English
IN-PROCESS; NONINDEXED; Priority Jo
GENBANK-AY027776
Entered STN: 10020228
Last Updated on STN: 10020229

AB A novel alkaliphilic *Nocardioopsis* sp., strain TOA-1, was isolated from a tile-joint of a bathroom. Strain TOA-1 produced a variety of alkaline hydrolytic enzymes. An alkaline **protease**, designated NAPase, was purified and characterized. NAPase had a very high keratinolytic activity and high stability under acidic conditions.

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L17  ANSWER 2 OF 8          MEDLINE          DUPLICATE 2
ACCESSION NUMBER:  2101061976      MEDLINE
DOCUMENT NUMBER:   20498785      PubMed ID: 11042393
TITLE:             Comparative characterization of two serine endopeptidases
                   from Nocardiosis sp. NCIM 5124.
AUTHOR:            Dixit V S; Pant A
CORPORATE SOURCE:  Division of Biochemical Sciences, National Chemical
                   Laboratory, 411008, Pune, India.
SOURCE:            BIOCHIMICA ET BIOPHYSICA ACTA, (2000 Oct 18) 1523 (2-3)
                   261-5.
                   Journal code: ADW. ISSN: 0006-3002.
PUB. COUNTRY:     Netherlands
                   Journal; Article; (JOURNAL ARTICLE)
LANGUAGE:          English
FILE SEGMENT:      Priority Journals
ENTRY MONTH:       200012
ENTRY DATE:        Entered STN: 20010322
                   Last Updated on STN: 20011122
                   Entered Medline: 20011229

```

AB A protease-producing, crude oil degrading marine isolate was identified as **Nocardiopsis sp.** on the basis of the morphology, cell wall composition, mycolic acid analysis and DNA base composition. The **Nocardiopsis** produces two extracellular **proteases**, both of which are alkaline serine endopeptidases. **Protease I** was purified to homogeneity by chromatography on CM-Sephadex at pH 5.0 and pH 9.0. **Protease II** was purified using DEAE-cellulose, Sephadex G-50, phenyl-Sepharose and hydroxyapatite chromatography. **Protease I** and **II** had almost similar M(r) of 21 kDa (**Protease I**) and 23 kDa (**Protease II**), pI of 3.3 and 7.0 respectively with pH and temperature optima for activity between 10.0 and 11.0 and about 60 degrees C. Specific activities were 152 and 14 U/mg respectively on casein. However, **Protease I** was antigenically unrelated to **Protease II**. Both **proteases** were endopeptidases and required extended substrate binding for catalysis. Both **proteases** had collagenolytic and fibrinolytic activity but only **Protease I** had elastinolytic activity. The **proteases** were chymotrypsin-like with respect to their amino acid compositions and N-terminal sequences.

$\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

Nocardioopsis sp.

A 1001 2001-17-1001-1

THE BACTERIAL LAB: Central Bacterial Microbiology, National Institute of
Laboratory, Pune, India.

Journal; Article; (JOURNAL ARTICLE)

English

Priority Journals

200304

Entered STM: 20000505

Last Updated on STN: 20000505

Entered: Mexline: 2011-25

AB An actinomycete isolated from an oil-contaminated marine environment and identified as **Nocardiopsis sp.** degraded hydrocarbons and also produced extracellular **protease**. Conditions for crude oil degradation and simultaneous production of extracellular **protease** were studied. An alternative approach for bio-augmented clean-up of oil spills using a micro-organism capable of degrading hydrocarbons and recruiting organic nitrogen by producing **proteases** is reported.

L17 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2000 ACS

ACCESSION NUMBER: 1999:217617 HCAPLUS

DOCUMENT NUMBER: 131:89142

TITLE: Enzymic activity of microorganisms isolated from yam
bean legume (*Pachyrhizus erosus* L. Urban)

AUTHOR(S): Stamford, Tania L. Montenegro; Araujo, J. Magali;
Stamford, N. Pereira

CORPORATE SOURCE: Departamento de Nutricao, Universidade Federal de Pernambuco, Recife, 50670-901, Brazil

SOURCE: Ciencia e Tecnologia de Alimentos (1998), 18(4), 342-345

CODEN: STALDN; ISSN: 0101-2061

PUBLISHER: Sociedade Brasileira de Ciencia e Tecnologia de Alimentos

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The isolation and identification of microorganisms that produce enzymes of com. interest utilizing tubers of yam bean legume (*Pachyrhizus erosus* L. Urban) was the main objective of this work. Endophytic and epiphytic microorganisms were isolated by micromorphol. observation. The agar diffusion method was used to det. enzymic activity. Sixty-eight isolates from yam bean tubers were cultured at 25.degree. C in solid medium specific to amylase, lipase, **protease** and cellulase for 96 h. The epiphytic microorganisms *Fithomyces* (7.3%), *Aspergillus* (12.2%), *Fusarium* (5.2%) and *Trichoderma* (3.8%) and the endophytic microorganisms *Mucor* (7.3%), *Rhizopus* (10.3%), *Bacillus* (12%), *Staphylococcus* (10.3%) and **Nocardiopsis** (12%) were isolated. Compared to the specific std. culture **Nocardiopsis sp.** showed higher lipolytic activity and similar amylolytic activity. *Mucor* sp., *Fithomyces* sp. and *Staphylococcus* sp. produced proteolytic activity lower than the std. culture. No isolate showed cellulolytic activity.

REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS
RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

LIV ANSWER 5 OF 6 BIOTECHE'S COPYRIGHT © 2012 THOMSON REUTERS AND ISI

1. 1990年12月25日，在俄罗斯莫斯科市郊，苏联总统戈尔巴乔夫在克里姆林宫正式签署《关于俄罗斯联邦国家主权宣言》，宣布俄罗斯联邦拥有国家主权，并宣布俄罗斯联邦退出苏联。

Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher than the number of incorrect responses in all cases.

[illegible]

1. *Journal of the American Medical Association*, 1997; 277: 1039-1043.

OTHER SOURCE: WPI: 1996-309622 [31]

AB A new method for producing wool or animal hair material with improved properties involves plasma treatment (at low temp. via corona discharge or glow discharge) or the Delhey process, followed by treatment with a **protease**. The product has improved shrink-proofing, improved anti-felting properties, improved degree of whiteness, improved dyeability, loss of bundle strength tenacity, improved softness and/or reduced pilling tendency. The **protease** is used for 1-120 min at 21-70 deg or preferably 30-60 or 40-60 deg) in acidic, neutral or alkaline medium, optionally with an anionic, nonionic or cationic surfactant. The enzyme is preferably subtilisin-PB92 (EC-3.4.21.62), subtilisin-309 or subtilisin-147 from *Bacillus licheniformis*, *Bacillus alcalophilus*, *Bacillus cereus*, *Bacillus natto*, *Bacillus vulgatus*, *Bacillus mycoide*, *Trithrachium album*, ***Nocardiopsis dassonvillei***, ***Nocardiopsis* sp.** NRRL 1813, *Aspergillus* sp., *Rhizopus* sp. or *Mucor* sp., or a subtilisin-309 variant with a G195F substitution. The **protease** is used at 1.0-10 w/w, based on wool or hair material. (46pp)

L17 ANSWER 6 OF 8 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1991-02357 BIOTECHDS

TITLE: **Protease-producing microorganism;**
thermostable alkaline **protease** preparation from
***Nocardiopsis* sp.**; purification and
characterization

PATENT ASSIGNEE: Snow-Brand-Milk-Prod.

PATENT INFO: JP 02235181 15 Oct 1990

APPLICATION INFO: JP 1989-75421 30 Mar 1989

PRIORITY INFO: JP 1989-75421 30 Mar 1989

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

OTHER SOURCE: WPI: 1990-352503 [47]

AB A new **protease**-producing microorganism is an alkalophilic actinomycete, ***Nocardiopsis* sp.** DPC-710 (FERM P-1-308), with a cell wall of meso-type III/C model, confirmed by 2,6-diaminopimelic acid determination, and phospholipid of the PIII model. The strain originates from soil. The **protease** is purified by acetone precipitation, dialysis, anion-exchange chromatography on DEAE-Sephadex A-50 and cation-exchange chromatography on CM-Sephacrose CL-6B. The **protease** has the following characteristics: a mol.wt. of 31,000 (SDS-PAGE); an optimum pH of 11-12 (in casein as a substrate); an optimum temp. of 60-70 deg; stability up to 50 deg at pH 11 for 30 min, and complete inactivation at 70 deg; residual activity above 60 at pH 4.5 and 60 deg for 30 min, and inactivation at pH 10; stabilization by calcium ions; and inhibition by PCMB and EDTA. The **protease** is a useful thermostable alkaline **protease**. (4pp)

L17 ANSWER 7 OF 8 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1988-08721 BIOTECHDS

TITLE: New strains of ***Nocardiopsis*** producing alkaline
protease;

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 1988-08721

protease

Nocardiopsis

growth below pH 8 and above 35 deg. The strain is **Nocardiopsis** Hassonvillei, preferably strain M58-1 or the new strain 10R or mutants of them. Also new is a method for preparing alkaline **protease** by cultivating a **Nocardiopsis** strain aerobically under submerged conditions in the presence of suitable C- and N-sources at a pH of 8-10 and temp. of 10-30 deg and recovering the enzyme from the culture broth. The method may be used to culture recombinant microorganisms, preferably **Nocardiopsis** spp., *Streptomyces* spp., yeasts, or *Aspergillus* spp, especially *Aspergillus oryzae*, containing genes from the specified strains. Specifically claimed is an alkaline **protease** obtained from **Nocardiopsis** sp. with at least 60 of its maximum activity in the pH range 7-11 with casein. A detergent additive comprising the alkaline **proteases** is also new and is either prepared as a granulate or as a stabilized liquid. The additive preferably has proteolytic activity of 0.001-0.5 or 0.5-10 CPU/g and additionally has a *Bacillus* sp. **protease**. (33pp)

LI7 ANSWER 8 OF 8 BIOTECHDC COPYRIGHT 2000 THOMSON DEEWENT AND ISI

ACCESSION NUMBER: 1988-06767 BIRTECHDS

TITLE: Enzymatic detergent additive with improved detergency;
comprising *Bacillus* sp. and fungal or actinomycete
protease

PATENT ASSIGNEE: NOVUS

PATENT INFO: WO 8803946 7 Jun 1988

APPLICATION INFO: WO 1987-00146 25 Nov 1987

PRIORITY INFO: DK 1986-5640 15 Nov 1986

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WFI: 1988-161616 [23]

AB A new proteolytic detergent additive comprises a combination of at least 2 alkaline **proteases**, one of which is obtained from *Bacillus* sp. while the other is of fungal or actinomycete origin. The *Bacillus* **protease** comprises 50-95, preferably 70-95% of the total proteolytic activity 0.1-10 or 0.001-0.06 CPU/g. Also new are the formulations and the washing process using the detergent. The additive has improved detergency, preferably 20-40% better than that expected for the individual **proteases**. The **proteases** preferably have pH optima of 9 or over towards casein and the *Bacillus* one retains 50-100% of maximum proteolytic activity at pH 12. The *Bacillus* sp. is preferably *Bacillus licheniformis* and the **protease** is preferably of the serine type. The fungal **protease** is preferably from *Paecilomyces* sp., *Nocardopsis* sp., or *Fusarium* sp., especially *Paecilomyces marquandii*, *Nocardopsis dassonvillei* or *Fusarium oxysporum*. The detergent additive is preferably provided as a non-custing granulate or a stabilized liquid. In an example heat-denatured blood swatches were washed at 25 deg for 20 min at a total **protease** dosage of 0.1 CPU/l from *Bacillus* spp. and *Nocardopsis* spp. (42pp)

→ d his

[illegible]

L7 55 S L1 AND L6
 L8 1 S L2 AND L7
 L9 43556 S ANIMAL (W)FEED?
 L10 1 S L3 AND L7
 L11 1 S COMPOSITION?
 L12 2805615 S COMPOSITION?
 L13 1 S L12 AND L7
 L14 2 DUP REM L13 (13 DUPLICATES REMOVED)
 L15 21 S L6 A) (SP. OR ALBA)
 L16 17 S L14 AND L7
 L17 2 DUP REM L16 (14 DUPLICATES REMOVED)

= s l6(a)nrrl18262
 L18 1 L6(A) NRR18262

= s l17 and acid
 L19 2 L17 AND ACID

= dup rem l12
 PROCESSING COMPLETED FOR L12
 L20 1 DUP REM L19 (9 DUPLICATES REMOVED)

= d 1-2 ibib sk

L20 ANSWER 1 OF 2 MEDLINE
 ACCESSION NUMBER: 0001061976 MEDLINE
 DOCUMENT NUMBER: 00493785 PubMed ID: 11042393
 TITLE: Comparative characterization of two serine endopeptidases from **Nocardiopsis sp.** NCIM 5124.
 AUTHOR: Dixit V S; Pant A
 CORPORATE SOURCE: Division of Biochemical Sciences, National Chemical Laboratory, 411008, Pune, India.
 SOURCE: BIOCHIMICA ET BIOPHYSICA ACTA, (2000 Oct 19) 1523 (2-3) 261-8.
 Journal code: AOW. ISSN: 0006-3002.
 PUB. COUNTRY: Netherlands
 Journal; Article; (JOURNAL ARTICLE)
 LANGUAGE: English
 FILE SEGMENT: Priority Journals
 ENTRY MONTH: 000012
 ENTRY DATE: Entered STN: 20010322
 Last Updated on STN: 20010322
 Entered Medline: 20011228

AB A **protease** producing, crude oil degrading marine isolate was identified as **Nocardiopsis sp.** on the basis of the morphology, cell wall composition, mycolic acid analysis and DNA base composition. The **Nocardiopsis** produces two extracellular **proteases**, both of which are alkaline serine endopeptidases. **Protease I** was purified to homogeneity by chromatography on CM-Sephadex at pH 5.0 and pH 9.0. **Protease II** was purified using DEAE-cellulose, Sephadex G-50, phenyl-Sepharose and hydroxyapatite chromatography. **Protease**

Protease
 Protease II. Both **proteases** were endopeptidases and required extended substrate binding for activity. Both **proteases** had cell-lytic and fibrinolytic activity but not hemolytic activity. **Protease I** was purified to homogeneity by chromatography on CM-Sephadex at pH 5.0 and pH 9.0. **Protease II** was purified using DEAE-cellulose, Sephadex G-50, phenyl-Sepharose and hydroxyapatite chromatography. **Protease**
 proteases
 acid

LEO ANSWER 2 OF 2 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI
ACCESSION NUMBER: 1991-02357 BIOTECHDS
TITLE:

Protease-producing microorganism;
thermostable alkaline **protease** preparation from
Nocardiopsis sp.; purification and
characterization

PATENT ASSIGNEE: Snow-Brand-Milk-Prod.
PATENT INFO: JP 02255081 15 Oct 1990
APPLICATION INFO: JP 1989-76421 30 Mar 1989
PRIORITY INFO: JP 1989-76421 30 Mar 1989
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
OTHER SOURCE: WPI: 1990-352502 [47]

AB A new **protease**-producing microorganism is an alkalophilic actinomycete, **Nocardiopsis sp.** DFD-210 (FERM P-1-508), with a cell wall of meso-type III/C model, confirmed by 2,6-diaminopimelic **acid** determination, and phospholipid of the PIII model. The strain originates from soil. The **protease** is purified by acetone precipitation, dialysis, anion-exchange chromatography on DEAE-Sephadex A-50 and cation-exchange chromatography on CM-Sephadex CL-6B. The **protease** has the following characteristics: a mol.wt. of 21,000 (SDS-PAGE); an optimum pH of 10-12 (on casein as a substrate); an optimum temp. of 60-70 deg; stability up to 50 deg at pH 10 for 30 min, and complete inactivation at 70 deg; residual activity above 80% at pH 4-8 and 60 deg for 30 min, and inactivation at pH 10; stabilization by calcium ions; and inhibition by PCMB and EDTA. The **protease** is a useful thermostable alkaline **protease.** (4pp)

=> d his

(FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASE?
L2 6016 S ACID(A)STABLE
L3 76 S L1(A) L2
L4 4 S NOCARDIOPSIS
L5 1 S NOCARDIOPSIS
L6 224 S NOCARDIOPSIS
L7 55 S L1 AND L6
L8 1 S L2 AND L7
L9 43556 S ANIMAL (WIFED?)
L10 1 S L2 AND L7
L11 1 S COMPOSITION?
L12 2805615 S COMPOSITION?
L13 22 S L12 AND L7
L14 9 DUP REM L13 (13 DUPLICATES REMOVED)
L15

FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

E4 13 SJOEHLIM CARSTEN/AU
 E5 1 SJOEHLIM ELISABETH/AU
 E6 1 SJOEHLIM ELISABETH A/AU
 E7 1 SJOEHLIM EVA/AU
 E8 1 SJOEHLIM G/AU
 E9 1 SJOEHLIM GIERAN HENRY/AU
 E10 1 SJOEHLIM GJESTA/AU
 E11 10 SJOEHLIM H/AU
 E12 6 SJOEHLIM HANS/AU

=> s e3

L21 10 "SJOEHLIM C"/AU

=> s e4

L22 13 "SJOEHLIM CARSTEN"/AU

=> s l21 or l22

L23 23 L21 OR L22

=> d his

(FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIGTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASES
 L2 6016 S ACID(A)STABLE
 L3 75 S L1(A)L2
 L4 0 S NOCARDIOSIS
 L5 1 S NOCARDIOSIS
 L6 649 S NOCARDIOSIS
 L7 55 S L1 AND L6
 L8 1 S L1 AND L7
 L9 43856 S ANIMAL (W)FEEDS
 L10 1 S L3 AND L7
 L11 1 S COMPOSITIONS
 L12 2805615 S COMPOSITIONS
 L13 22 S L12 AND L7
 L14 9 DUP REM L13 (13 DUPLICATES REMOVED)
 L15 231 S L1 (A) (SI. OR ALBA)
 L16 21 S L17 AND L13
 L17 1 DUP REM L16 (14 DUPLICATES REMOVED)
 L18 3 DRAINERELIPEP
 L19 1 S L17 AND L18
 L20 1 DUP REM L19 (1 DUPLICATES REMOVED)
 E SJOEHLIM C/AU
 L21 10 S E3
 L22 13 S E4
 L23 23 S L21 OR L22

=> s l7 and l23

L24 24 L21 OR L22

AN 13:58:51 ON 25 APR 2002
 IN 13:58:51 ON 25 APR 2002
 TO 13:58:51 ON 25 APR 2002
 BY 13:58:51 ON 25 APR 2002

CODEN: PIXXD2

DT Patent
LA English
IC ITM A23K001-165
CC 17-18 (Food and Feed Chemistry)
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001058276	A2	20010816	WO 2001-EP1153	20010105
	WO 2001058276	A3	20020211		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CR, CU, CV, DE, DK, DM, DO, EE, ES, FI, GE, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TS, UA, UG, US, UZ, VN,
YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

KW: GH, GM, KE, LS, MW, MC, SD, SL, SE, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GW, ML, ME, NE, SN, TD, TG

US 2001026797 A1 20011004 US 2001-779323 20010208

PRAI DK 2000-100 A 20000208

US 2000-183183P P 20000217

AB Disclosed are acid-stable **proteases** homologous to those derived from strains of the genus **Nocardiopsis**, their use in animal feed, feed-additives and feed compns. contg. such **proteases**, and methods for the treatment of vegetable proteins using such **proteases**.

ST **protease Nocardiopsis** animal feed vegetable protein

IT Feed

Nocardiopsis

(acid-stable **Nocardiopsis** proteases in animal feed)

IT Vegetable

(proteins; treatment with proteinases in manufg. feed)

IT Proteins, general, biological studies

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(soybean; animal feed manuf. with proteinases and)

IT Proteins, general, biological studies

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(vegetable; treatment with proteinases in manufg. feed)

IT 9001-92-7, **Protease**

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(acid-stable **proteases** in animal feed)

IT 9031-11-2, .beta. Galactanase 37278-49-1, Xylanase 37341-59-1, Phytase

39346-28-6, Galactanase

RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)

(animal feed contg. proteinases and)

=> e oestergaard p r/au

E1 4 OESTERGAARD P AA/AU

E2 15 OESTERGAARD P B/AU

E3 5 OESTERGAARD P C/AU

E4 2 OESTERGAARD P D/AU

E5 2 OESTERGAARD P E/AU

E6 2 OESTERGAARD P F/AU

=> s e3

LL5 5 "OESTERGAARD P R"/AU

=> d his

(FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS, LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASE?
L2 6016 S ACID(A)STABLE
L3 76 S L1(A)/L2
L4 0 S NOCARDIOSIS
L5 1 S NOCARDIOSIS
L6 649 S NOCARDIOSIS
L7 55 S L1 AND L6
L8 1 S L2 AND L7
L9 43556 S ANIMAL (W)FEED?
L10 1 S L9 AND L7
L11 1 S COMPOSITION?
L12 28056.5 S COMPOSITION?
L13 12 S L12 AND L7
L14 2 DUP REM L13 (13 DUPLICATES REMOVED)
L15 201 S L6 (A) (SP. OR ALBA)
L16 27 S L15 AND L7
L17 5 DUP REM L16 (14 DUPLICATES REMOVED)
L18 0 S L6(A)NEEL18262
L19 2 S L17 AND ACID
L20 2 DUP REM L19 (0 DUPLICATES REMOVED)
E SJOEHOLM C/AU
L21 19 S E3
L22 13 S E4
L23 13 S L21 OR L22
L24 1 S L7 AND L23
E OESTERGAARD P R/AU
L25 5 S E3

=> s 123 or 115

LL6 25 L23 OR L25

=> s 11 and 126

L27 3 L1 AND L26

=> dup rem 127

PROCESSING COMPLETED FOR L27

LL8 1 DUP REM L27 (0 DUPLICATES REMOVED)

=> d 1-5 ibib ab

LL8 ANSWER 1 OF 5 BIOTECHDS COPYRIGHT 2002 THOMSON LAWRENT AND ISI
ACCESSION NUMBER: 2001-16039 BIOTECHDS

INVENTOR: Oestergaard P R; Sjoeholm C
PATENT AGENT: P. R.
LOCATION: Basle, Switzerland.
PUBLISHED: 2002-04-04

LANGUAGE: English
OTHER SOURCE: WPI: 2001-488930 [53]

AB The use of at least one stable **protease** (EC-3.4.21.62) in feedstuff where the **protease** has identity of at least 70% to a 158 amino acid sequence (I) and/or a 17 amino acid sequence (II), is claimed. Also claimed are: improving the nutritional value of feedstuff; an animal food-additive; and treatment of vegetable proteins. At least one acid stable **protease** is useful in the preparation of a composition for use in feedstuff. The **protease** has 71% identity to (I) and/or (II). The dosage of the **protease** is 0.01-200 mg. The feed composition is useful for feeding animals, including humans. Animals include ruminants and non-ruminants i.e. monogastric animals i.e. pigs, poultry and fish. The feedstuff comprises phytase, endo-1,4-beta-D-xylanase (EC-3.2.1.8), galactanase and/or beta-glucanase (EC-3.2.1.39). Soybean (Glycine max) is included amongst the vegetable source. (42pp)

LE8 ANSWER 2 OF 5 BIOTECNDS COPYRIGHT 2002 THOMSON DEWENT AND ISI
ACCESSION NUMBER: 2001-16038 BIOTECNDS

TITLE: Use of acid stable **protease** of the subtilisin for producing a food composition;
for use as feedstuff, as a food-additive and in vegetable protein treatment

AUTHOR: Oestergaard P R; Sjoeholm C; Kruenter A
PATENT ASSIGNEE: Roche
LOCATION: Basle, Switzerland.
PATENT INFO: WO 2001098275 16 Aug 2001
APPLICATION INFO: WO 2001-EP1152 5 Feb 2001
PRIORITY INFO: DK 2000-200 3 Feb 2000
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2001-488929 [53]

AB The use of at least one stable **protease** (EC-3.4.21.62) in feedstuff where the **protease** is of the subtilisin family and/or has less than 10% residual activity when inhibited with subtilisin, is claimed. Also claimed are: improving the nutritional value of feedstuff; an animal food-additive; and treatment of vegetable proteins. At least one acid stable **protease** is useful in the preparation of a composition for use in feedstuff. The **protease** is of the subtilisin family and/or 10% residual activity when inhibited with subtilisin. The dosage of the **protease** is 0.01-200 mg/kg of food. The feed composition is useful for feeding animals, including humans. Animals include ruminants and non ruminants i.e. monogastric animals i.e. pigs, poultry and fish. The feedstuff comprises phytase, endo-1,4-beta-D-xylanase (EC-3.2.1.8), galactanase and/or beta-glucanase (EC-3.2.1.39). Soybean (Glycine max) is included amongst the vegetable source. (63pp)

LE8 ANSWER 3 OF 5 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001-527756 HCAPLUS
DOCUMENT NUMBER: 135:152939

DOCUMENT INFO:
LANGUAGE: English
FAMILY AND APP. INFO:

WD 2001058275 A2 20010816 WD 2001-EP1153 20010105
WD 2001058275 A3 20020101

W: AE, AG, AL, AM, AN, AP, AS, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CR, CU, CZ, DE, DK, DM, DS, EE, EF, FI, GE, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KS, LC, LK, LR, LS, LT,
LU, LV, MA, MD, ME, MK, MN, MW, MX, MY, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW, AM, AS, BY, EG, EL, MD, RU, TF, TM
RW: GH, GM, KE, LS, MW, MG, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2001016797 A1 20011004 US 2001-779323 20010108
PRIORITY APPLN. INFO.: DK 2100-200 A 20000108
US 2100-183133 P 20000117

AB Disclosed are acid-stable **proteases** homologous to those derived from strains of the genus *Neocardopsis*, their use in animal feed, feed-additives and feed compns. contg. such **proteases**, and methods for the treatment of vegetable proteins using such **proteases**.

L28 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:597755 HCAPLUS
DOCUMENT NUMBER: 135:180105
TITLE: Use of acid-stable subtilisin **proteases** in animal feed
INVENTOR(S): Oestergaard, Peter Rahbek; Sjoeholm, Carsten
; Kluntor, Anna-marie
PATENT ASSIGNEE(S): F Hoffmann-La Roche A.-G., Switz.
SOURCE: PCT Int. Appl., 63 pp.
CODEN: PIXKDE
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WD 2001058275	A2	20010816	WD 2001-EP1152	20010105
WD 2001058275	A3	20020101		

W: AE, AG, AL, AM, AN, AP, AS, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CR, CU, CZ, DE, DK, DM, DS, EE, EF, FI, GE, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KS, LC, LK, LR, LS, LT,
LU, LV, MA, MD, ME, MK, MN, MW, MX, MY, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW, AM, AS, BY, EG, EL, MD, RU, TF, TM
RW: GH, GM, KE, LS, MW, MG, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2001026797 A1 20011004 US 2001-779323 20010108
PRIORITY APPLN. INFO.: DK 2100-200 A 20000108

proteases
proteases

L28 ANSWER 4 OF 5 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2001:597755 HCAPLUS

INVENTOR(S): **Sjoeholm, Carsten;** Nielsen, Bjarne
 Roenfeldt; Dambmann, Claus
 PATENT ASSIGNEE(S): Novo Nordisk A/s, Den.; Sjoeholm, Carsten; Nielsen,
 Bjarne Roenfeldt; Dambmann, Claus
 SOURCE: PCT Int. Appl., 35 pp.
 CODEN: PINKD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACQ. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9704082	A1	19970206	WO 1996-DK299	19960702
W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CO, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG RW: KE, LS, MW, SD, SO, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA AU 9065128 A1 19970218 AU 1996-65128 19960702 EP 839187 A1 19960506 EP 1996-914787 19960702 E: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, NL, SE, PT, IE, FI CN 1193996 A 19960913 CN 1996-196439 19960702 US 5948746 A 19991207 US 1996-7169 19960114 PRIORITY APPLN. INFO.: DK 1996-844 19960719 WO 1996-DK299 19960702				

AB The present invention relates to novel proteolytic enzymes. More specifically, the present invention relates to proteolytic enzymes obtainable from strains of *Amycolata* and *Amycolatopsis*. Moreover the invention relates to a process for the prepn. of the proteolytic enzyme of the invention, as well as detergent additives and detergent compns. comprising the proteolytic enzyme. The **protease** purified from *Amycolatopsis mediterranea* had a mol. wt. of 33 kilodaltons and a pI of 3.1. The enzyme displayed 99% activity at pH 8-11 and had a temp. optimum between 30-45.degree. when detd. on casein substrate. Using glucagon as a substrate, the **protease** showed a preference for cleaving Arg-Arg and Trp-Leu bonds, with weaker activity at Lys-Tyr bonds. Detergent formulations contg. the **protease** are presented.

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(FILE 'HOME' ENTERED AT 13:58:10 ON 25 APR 2002)

FILE 'MEDLINE, EMBASE, BIOSIS, BICTECHDS, SCISEARCH, HCAPLUS, NTIS,
 LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASE?
 L2 6616 S ACID A STABLE
 L3 76 S LI ABL2

L4 100 S ANIMAL W 88-11
 L5 100 S ANIMAL W 88-11
 L6 100 S ANIMAL W 88-11

L15 201 S L6 (A) (SP. OR ALBA)
 L16 1 S L15 AND L7
 L17 1 DUP REM L16 (14 DUPLICATES REMOVED)
 L18 1 S L6 A:NRRL18262
 L19 1 S L17 AND ACID
 L20 1 DUP REM L19 (0 DUPLICATES REMOVED)
 E SJOEHOLM C/AU
 L21 10 S E3
 L22 13 S E4
 L23 23 S L21 OF L22
 L24 1 S L7 AND L3
 E OESTERGAARD P R/AU
 L25 5 S E3
 L26 15 S L23 OF L25
 L27 5 S L1 AND L26
 L28 5 DUP REM L27 (0 DUPLICATES REMOVED)

=> s 128 and 115

L29 0 L28 AND L15

=> s 128 and 12

L30 4 L28 AND L2

=> dup rem 130

PROCESSING COMPLETED FOR L30

L31 4 DUP REM L31 (0 DUPLICATES REMOVED)

=> d 1-4 ibib ak

L31 ANSWER 1 OF 4 BIOTECHDS COPYRIGHT 2002 THOMSON DERWENT AND ISI

ACCESSION NUMBER: 2001-16039 BIOTECHDS

TITLE: Use of **acid stable protease** for
 producing a food composition;
 for use as feedstuff, as a food-additive and in vegetable
 protein treatment

AUTHOR: Oestergaard P R; Sjoeholm C

PATENT ASSIGNEE: Roche

LOCATION: Basle, Switzerland.

PATENT INFO: WO 2001058276 16 Aug 2001

APPLICATION INFO: WO 2001-EP1153 5 Feb 2001

PRIORITY INFO: DE 2000-10 8 Feb 2000

DOCUMENT TYPE: Patent

LANGUAGE: English

OTHER SOURCE: WPI: 2001-438930 [53]

AB The use of at least one stable **protease** (EC-3.4.21.62) in
 feedstuff where the **protease** has identity of at least 70% to a
 183 amino acid sequence (I) and/or a 17 amino acid sequence (II), is
 claimed. Also claimed are: improving the nutritional value of feedstuff;
 an animal food-additive; and treatment of vegetable proteins. At least
 one **acid stable protease** is useful in the
 preparation of a composition for use in feedstuff. The **protease**

The use of at least one stable **protease** (EC-3.4.21.62) in
 feedstuff where the **protease** has identity of at least 70% to a
 183 amino acid sequence (I) and/or a 17 amino acid sequence (II), is
 claimed. Also claimed are: improving the nutritional value of feedstuff;
 an animal food-additive; and treatment of vegetable proteins. At least
 one **acid stable protease** is useful in the
 preparation of a composition for use in feedstuff. The **protease**

acid stable protease

the subtilisin for producing a food composition;
for use as feedstuff, as a food-additive and in vegetable
protein treatment

AUTHOR: Oestergaard P R; Sjoeholm C; Kluentner A
PATENT ASSIGNEE: Roche
LOCATION: Basle, Switzerland.
PATENT INFO: WO 2001058275 16 Aug 2001
APPLICATION INFO: WO 2001-EP1153 5 Feb 2001
PRIORITY INFO: DK 2000-200 8 Feb 2000
DOCUMENT TYPE: Patent
LANGUAGE: English
OTHER SOURCE: WPI: 2001-488929 [53]

AB The use of at least one stable **protease** (EC-3.4.21.62) in
feedstuff where the **protease** is of the subtilisin family and/or
has less than 10% residual activity when inhibited with subtilisin, is
claimed. Also claimed are: improving the nutritional value of feedstuff;
an animal food additive; and treatment of vegetable proteins. At least
one **acid stable protease** is useful in the
preparation of a composition for use in feedstuff. The **protease**
is of the subtilisin family and/or 10% residual activity when inhibited
with subtilisin. The dosage of the **protease** is 0.01-200 mg/kg
of feed. The feed composition is useful for feeding animals, including
humans. Animals include ruminants and non-ruminants i.e. monogastric
animals i.e. pigs, poultry and fish. The feedstuff comprises phytase,
endo-1,4-beta-D-xylanase (EC-3.2.1.8), galactanase and/or beta-glucanase
(EC-3.2.1.39). Soybean (Glycine max) is included amongst the vegetable
source. (63pp)

LE1 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:597756 HCAPLUS
DOCUMENT NUMBER: 135:152030
TITLE: Use of **acid-stable
proteases** in animal feed
INVENTOR(S): Oestergaard, Peter Rahbek; Sjoeholm, Carsten
PATENT ASSIGNEE(S): F Hoffmann-La Roche A.-G., Switz.
SOURCE: PCT Int. Appl., 49 pp.
CODEN: PIXX2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001058276	A2	20010816	WO 2001-EP1153	20010205
WO 2001058276	A3	20010821		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BE, BG, BR, BY, BZ, CA, CH, CN,
CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TT, TM, TR, TZ, UA, UG, US, UZ, VN,

PRIORITY ABSTRACT INFO:

acid stable proteases

proteases.

using such **proteases**.

L21 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2101:597755 HCAPLUS
DOCUMENT NUMBER: 135:150103
TITLE: Use of **acid-stable** subtilisin
proteases in animal feed
INVENTOR(S): Oestergaard, Peter Rahbek; Sjoeholm, Carsten
; Kluentner, Anna-marie
PATENT ASSIGNEE(S): F Hoffmann-La Roche A.-G., Switz.
SOURCE: PET Int. Appl., 63 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY APP. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001058275	A2	20010816	WO 2001-EP1152	20010205
WO 2001058275	A3	20020201		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CF, CU, CZ, DE, DK, DM, DO, EE, ES, FI, GE, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NE, NL, NO, NZ, PA,
PE, PG, PH, PK, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, SM, SN,
SU, SV, SW, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KB, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SS, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,
BG, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

US 2001026797 A1 20011004 US 2001-779323 20010208
PRIORITY APPLN. INFO.: DK 2000-200 A 20000108
US 2000-183133P P 20000117

AB Disclosed are **acid-stable proteases** of the
subtilisin family, their use in animal feed, feed-additives and feed
compos. contg. such **proteases**, and methods for the treatment of
vegetable proteins using such **proteases**.

=> d h.s

FILE 'HOME' ENTERED AT 13:59:17 ON 25 APR 2002

FILE 'MEDLINE, EMBASE, BIOSIS, BIOTECHDS, SCISEARCH, HCAPLUS, NTIS,
LIFESCI' ENTERED AT 13:58:51 ON 25 APR 2002

L1 349244 S PROTEASEY
L2 6016 S ACID (A) STABLE
L3 76 S L1 (A) L2
L4 0 S NOCARDIOPSIS
L5 1 S NOCARDIOPSIS
L6 499 S NOCARDIOPSIS

1111 1111 1111 1111 1111 1111 1111 1111 1111 1111
1111 1111 1111 1111 1111 1111 1111 1111 1111 1111
1111 1111 1111 1111 1111 1111 1111 1111 1111 1111
1111 1111 1111 1111 1111 1111 1111 1111 1111 1111

L18 0 S L5(A)NRRL18262
L19 2 S L17 AND ACID
L20 2 DUP REM L13 (0 DUPLICATES REMOVED)
E SJOEHOLM C/AU
L21 10 S E3
L22 13 S E4
L23 23 S L21 OR L22
L24 1 S L7 AND L23
E OESTERGAARD P R/AU
L25 5 S E3
L26 25 S L23 OR L25
L27 5 S L1 AND L26
L28 5 DUP REM L27 (0 DUPLICATES REMOVED)
L29 0 S L28 AND L15
L30 4 S L28 AND L2
L31 4 DUP REM L30 (0 DUPLICATES REMOVED)

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	L #	Hits	Search Text
1	L1	27383	protease\$2
2	L2	107	nocardiopsis
3	L3	19	11 same 12
4	L4	3735	"sp." or alba
5	L5	1	12 adj 14
6	L6	5596	animal adj feed
7	L7	19	11 same 13
8	L8	19	17 same 13
9	L9	1	14 same 13
10	L10	5828	acid adj (resistant or stable)

11. 12. 13. 14. 15. 16. 17. 18. 19. 20.

	L #	Hits	Search Text
13	L13	0	oesterogaard.in.
14	L14	1	oestergaard.in.

	U	1	Document ID	Issue Date	Pages
1	<input type="checkbox"/>	<input type="checkbox"/>	US 20010026797 A1	20011004	18
2	<input type="checkbox"/>	<input type="checkbox"/>	US 5558640 A	19960924	6

	Title	Current OR	Current XRef
1	Use of acid-stable proteases in animal feed	424/94.6	426/54
2	System for infusion of medicine into the body of a patient	604/67	604/891.1; 607/32

[illegible]

	Image Doc. Displayed	PT
1	US 20010026797	<input type="checkbox"/>
2	US 5558640	<input type="checkbox"/>

	L #	Hits	Search Text
13	L13	0	oesterogaard.in.

	Document ID	Issue Date	Pages	Title
1	US 20010003220 A1	20010614	14	METHOD FOR ENZYMATIC TREATMENT OF WOOL
2	US 20010026797 A1	20011004	18	Use of acid-stable proteases in animal feed
3	US 4927558 A	19900522	22	Proteolytic detergent additive and compositions containing the same
4	US 5312748 A	19940517	13	Protease
5	US 5646028 A	19970708	18	Alkaline serine protease streptomyces griseus var. alkaliphilus having enhanced stability against urea or guanidine
6	US 5705379 A	19980106	14	Nucleotide sequences encoding a thermostable alkaline protease
7	US 5811342 A	19990922	6	Detergent compositions
8	US 5837517 A	19981117	24	Protease variants and compositions

	Document ID	Issue Date	Pages	Title
10	US 6051033 A	20000418	8	Method for enzymatic treatment of wool
11	US 6087315 A	20000711	10	Protease variants
12	US 6099588 A	20000808	10	Method for treatment of wool
13	US 6100080 A	20000808	10	Method for enzymatic treatment of biofilm
14	US 6110884 A	20000829	10	Protease variants
15	US 6140109 A	20001031	7	Method for enzymatic treatment of wool
16	US 6199900 B1	20010220	24	Subtilase variants
17	US 6268129 B1	20010310	13	Method for enzymatic treatment of wool

	Document ID	Issue Date	Pages	Title
19	US 6300116 B1	20011009	35	Modified protease having improved autoproteolytic stability

	Document ID	Issue Date	Pages	Title
1	US 20010026797 A1	20011004	18	Use of acid-stable proteases in animal feed